Chapter 9
A 33-Year-Old Woman with Brain Metastases of Unknown Origin and a Melanotic Lesion on the Scalp

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A 33-year-old woman with brain metastases of unknown origin was consulted in the Department of Dermatology. There was no personal of family history of skin cancer.

A physical examination of the scalp revealed an atypical pigmented skin lesion (5 cm × 5 cm) with irregular borders, nodules and multiple, variable colors (black, brown, grey, white, pink, purple and yellow) located on the right temporal area (Fig. 9.1). On dermoscopy, multiple brown and black dots, irregular structures, blue-white veil, pseudopods, scar-like depigmentation, irregular linear vessels as well as hairpin and dotted vessels were observed (Fig. 9.2).

Based on the case description and the photographs, what is your diagnosis?

Differential Diagnoses

1. Melanoma.
2. Pigmented basal cell carcinoma.
3. Seborrheic keratosis.
4. Melanotic nevus.

Diagnosis

Melanoma.

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Fig. 9.1 A 33-year-old woman with an typical pigmented skin lesion with irregular borders, nodules and multiple, variable colors located on the right temporal area

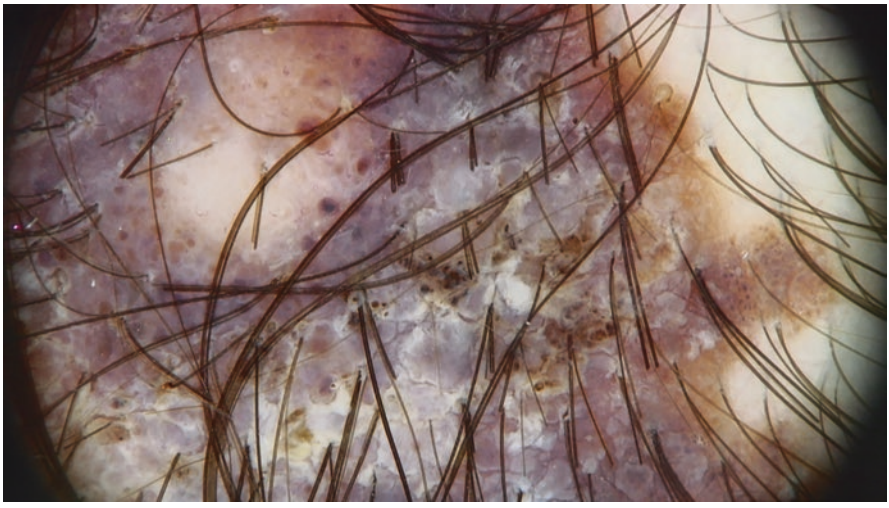

Fig. 9.2 Dermoscopy with the presence of black dots, irregular structures, blue-white veil and scar-like depigmentation (×20)

Discussion

Melanoma is the most fatal form of skin cancer [1]. Older age, low Fitzgerald skin phototypes, multiple (100) nevi, personal and family history of skin cancer, and personal history of intense ultraviolet exposure are the most critical risk factors for melanoma development [1–3]. Melanoma most commonly affects the elderly.

However, it is the third most common cancer in adolescents and young adults ages 15–39 years [4]. The typical cutaneous melanoma occurs as an asymmetric macule or nodule with irregular borders, frequently with variations in color within the lesion. It may also presents as a pink or red lesion (amelanotic melanoma) [1]. Based on the growth pattern melanoma is classified into superficial spreading, nodular, lentigo maligna, and acral. Histopathology is a gold standard diagnostic method in melanoma. Dermoscopy is helpful to establish initial diagnosis. Characteristic dermoscopic features of cutaneous melanoma include atypical pigment network, angulated lines, negative network, atypical streaks and atypical dots/globules. Blue-white veil, atypical blotches, regression structures, peripheral tan structureless areas, shiny white structures and atypical vascular structures are also melanoma-specific findings [5]. In histopathological examination, nests of atypical melanocytes within the epidermis and/or dermis are observed [2]. Atypical melanocytes may be detected higher up in the epidermis, termed, pagetoid spread. There may be also continuous atypical melanocytes along the dermal-epidermal junction, termed lentiginous proliferation. Markers for melanocytic differentiation, used to highlight melanocytes include HMB-45, Melan-A/Mart 1, MITF, and Sox-10. In histopathology, the invasion depth (Breslow thickness) should be evaluated as it considered to be the most important prognostic indicator which guides treatment [3]. In melanoma wide local excision is recommended. Melanoma in-situ should be excised with margins of 5 mm–1 cm, melanoma <1 mm thick with 1 cm margins, melanoma 1 mm–2 mm thick with 1–2 cm margins and melanoma >2 mm thick with 2 cm margins.

Scalp melanomas account for 7% of all melanomas [6]. Hair loss, chronic sun damage and history of skin cancer are well-recognized risk factors for developing the scalp melanoma. Similarly, to cutaneous melanoma on the other areas, the scalp melanoma occurs mostly in the elderly, with average age ranging from 50 to 67 years. Men are more commonly affected compared to women [7]. The scalp melanoma is characterized by more aggressive biologic behavior and is often diagnosed at a late stage. Indeed, patients with the scalp melanoma have poorer outcome and are in particularly high risk of brain metastasis compared to patients with melanoma on other head and neck areas [6]. Similarly to melanoma in other areas, wide local excision is recommended. Scalp melanoma in situ should be excised with 5 mm margins, melanoma <1 mm thick with 1 cm margins, melanoma 1–4 mm thick with 2 cm margins and melanoma >4 mm thick with 3 cm margins [6].

Differential diagnoses for the presented patient included pigmented basal cell carcinoma, seborrheic keratosis and melanotic nevus.

Basal cell carcinoma is the most common type of skin malignancy. The incidence rate of the disease increases with age. Basal cell carcinoma presents as a tiny, hardly visible papule, growing into a nodule or a plaque that is sometimes ulcerated. The face, scalp or neck areas are most commonly affected. Basal cell carcinoma on the scalp tends to present more pigmented compared to other body sites [8].

Seborrheic keratosis results from benign clonal expansion of epidermal keratinocytes. It is most common in the middle-aged and elderly, however it may also present in young adults. Typical lesion is sharply demarcated, round or oval-shaped,

elevated and stuck on the skin with a verrucous, dull, uneven, or punched-out surface. The color of the lesions varies from skin color, yellowish, light to dark brown, grey, and black. Seborrheic keratosis may present as an isolated or multiple lesions. The chest, back, scalp (mainly the temporal areas) and neck are most commonly affected [9].

The scalp is an anatomical location for nevi with site-related atypia, a subset of melanocytic nevi that share histologic features with melanoma but are benign. The clinical patterns of the scalp melanocytic nevi are solid brown, solid pink, eclipse and cockade. The lesions are most commonly presented on the vertex and parietal areas [10].

Based on patient's history, clinical and dermoscopic findings initial diagnosis of melanoma was established. The patient was referred for surgical removal of the lesion. A histopathological examination confirmed clinical diagnosis of melanoma with pT3a, Breslow 2.3 mm and BRAF V600 mutation.

Key Points

- Scalp melanomas account for 7% of all melanomas.
- Scalp melanoma presents as an asymmetric macule or nodule with irregular borders, frequently with variations in color within the lesion; it may also presents as pink or red lesion.
- Scalp melanoma is characterized by more aggressive biologic behavior and is often diagnosed at a late stage.

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